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IMB-CNM-CSIC R&D in the framework of InCAEM

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Most R&D activities of the IMB-CNM-CSIC aim to realize chip hardware, spanning transversally and combining the micro, nano and quantum technologies scales, and providing miniaturized devices and systems for verticals including energy, health or physics frontiers.

Related to energy harvesting and nanomaterials for thermoelectricity, the InCAEM approach (In-situ Correlative Facility for Advanced Energy Materials) would benefit the investigation of currently funded projects on ultrathin films of crystalline silicon periodic nanostructured by block copolymer thin films, structured metal oxide semiconductors, and their metal decorated versions, as well as in operando studies of alternative methods for dopants diffusion in nano and thin film silicon or formation of silicides.

Additionally, there is a long and consolidated experience at the IMB-CNM-CSIC on delivering advanced or customized radiation detectors, traditionally based on silicon, that recently converged with our capabilities and developments in novel and emerging nanomaterials such as graphene. Recent achievements include both heterogenous integration of graphene in silicon photodetectors and monolithic integration of graphene in silicon carbide platforms, enabling radiation hard devices potentialy useful for nuclear energy applications or synchrotron beamlines. We envision that these activities can also enrich and generate several synergies in relation to the InCAEM project.

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